

# DYNAUDIO®

TECHNOLOGY UNLIMITED

21 W-54

## APPLICATIONS

8" woofer for all  
kind of hi-fi-use:  
2way (or up) systems  
transmission line  
bass reflex  
aperiodic damped or  
sealed enclosure

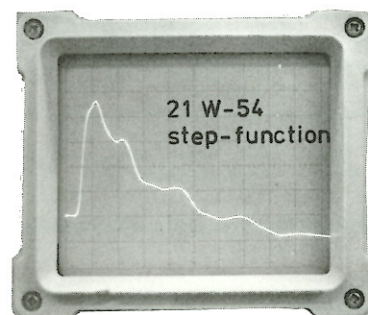
## FEATURES

magnesium die cast  
basket  
very high power  
handling  
high BL-factor  
rigid construction  
tropic proof  
vented long throw  
system  
hexacoil technique  
PHA cone material  
(phase homogeneous area)

Many years of lifetime have branded this type to be the most rigid and most precise 8" woofer. Now some very important specifications got upgraded: the cone is changed to polymer based mixture (PHA=phase homogeneous area), enriched with metal oxide particles for higher damping and the geometric shape is revised for almost unmeasurable distortion (see diagram h. d.) The magnet system is enlarged substantially and allows now cone displacement of total 29 mm. The center venting is adjusted accordingly. The highrated advantages as DTL (dynamic transient linearity), HEXACOIL and the rigid magnesium die cast frame remain unchanged.



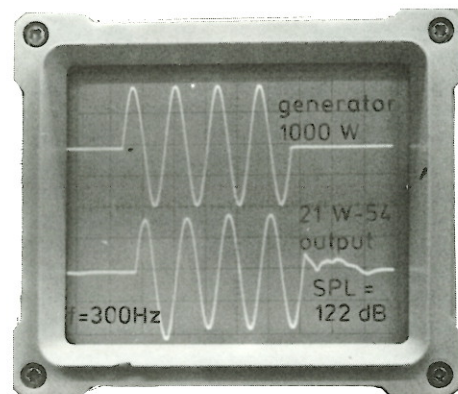
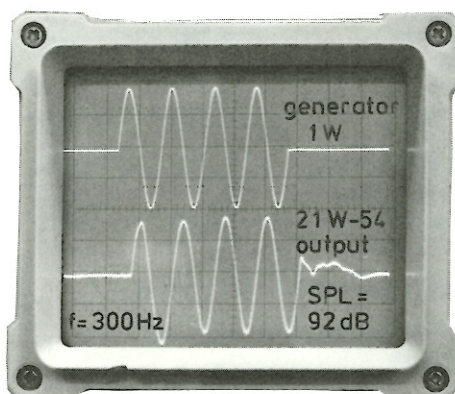
With a STEP-FUNCTION datas about SPL and time scale are not important. A trained expert can compare stepfunctions made with even different scales. The cone steps up and creates a sound wave which meets a 1/4" B&K measuring mic. The slope shown on the screen shows the amount of air moved. So with woofers of same diameter the average of slope is the same. If now rise and slope is set in relation to each other two stepfunctions can be compared. The right picture shows that the 21 W-54 has a rise time ten times as fast as normal speakers of this size.



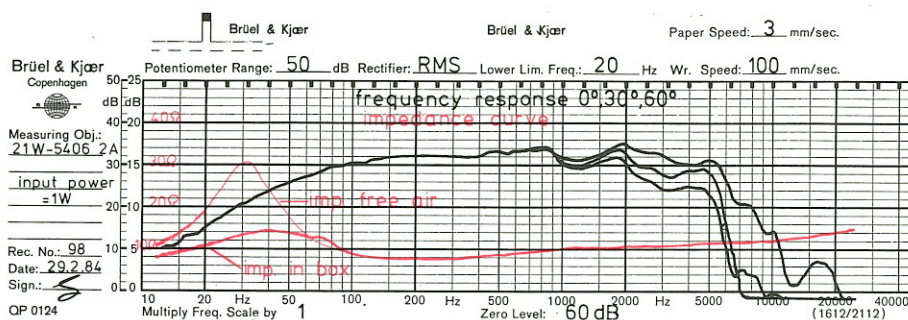
## TONE BURSTS

Tone bursts are the best way to obtain an accurate picture of overall acoustic performance. Regrettably they are mostly used only to test rise-time and ringing - which shows much more clearly with a step function test! With a tone burst, all the moving parts of a speaker can be loaded without burning the voice coil. With a given frequency the SPL should be 30dB higher at 1000 W input when compared with a 1 W input, if the output is linear. This test shows the driver's ability to reproduce the transients without compression. The right picture shows that even a 1000 W input is not the limit: the dynamic response is absolutely linear. Data given in catalogues (and even test reports) normally are calculated figures and not measured values.

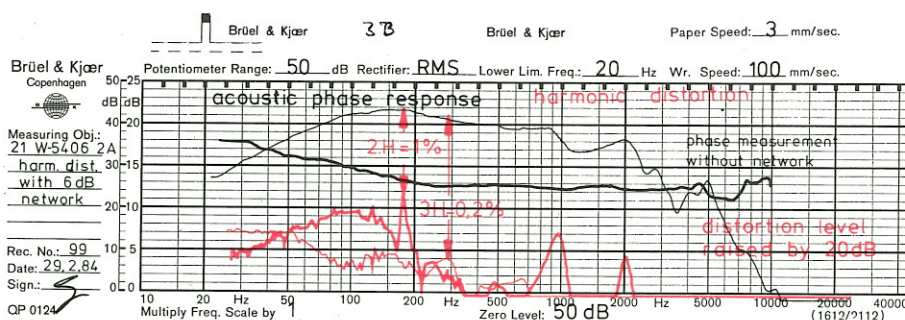
This compression effect is either under-rated or ignored very often. That is why many speakers do not produce SPL's above 100 dB, in spite of higher theoretical specifications. However this test exposes such anomalies between calculations and actual measurements.



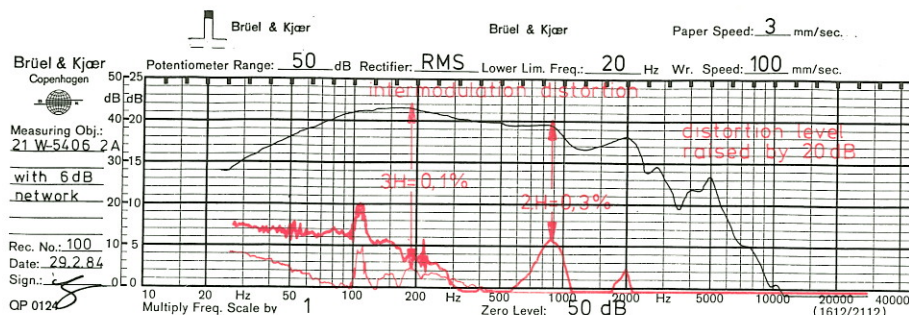




Balanced response up to 4 kHz, important in 2way combinations. Early roll-off and high but narrow resonance impedance indicate high magnetic damping and energy.



The h. d. does not exceed 1% all over. The acoustic phase is linear up to 10 kHz (!) - no sharpness in 2way systems.



The intermodulation distortions are below 1%. A 6dB filter will serve best.



Full automatic production lines spitting out big numbers of more or less one-way-products with infernal speed have impressed most of the visitors of far eastern electronic factories.

Impressed said the production engineer of a high grade rationalised speaker factory when visiting the DYNAUDIO-plaht: "My god, you are making speakers like the swiss watch makers are making their world famous watches!"

|                             |                  |  |  |                  |         |
|-----------------------------|------------------|--|--|------------------|---------|
| Compliance:                 |                  |  | Overall dimensions:                          |                  |         |
| suspension                  | C <sub>ms</sub>  | 0,886 · 10 <sup>-3</sup> m/N               | 222 x 83 mm                                  |                  |         |
| acoustic                    | C <sub>as</sub>  | 0,429 · 10 <sup>-6</sup> m <sup>5</sup> /N | Power handling:                              |                  |         |
| equivalent volume           | V <sub>as</sub>  | 59,6 l                                     | *nominal                                     | DIN              | 160 W   |
| Cone:                       |                  |  | *music                                       | DIN              | 220 W   |
| eff. cone area              | S <sub>d</sub>   | 220 cm <sup>2</sup>                        | transient                                    | 10 ms            | 1000 W  |
| moving mass                 | M <sub>ms</sub>  | 27 g                                       | Q-factor:                                    |                  |         |
| lin. volume displacement    | V <sub>d</sub>   | 154 cm <sup>3</sup>                        | mechanical                                   | Q <sub>ms</sub>  | 2,03    |
| mech. resistance            | R <sub>ms</sub>  | 2,60 kg/s                                  | electrical                                   | Q <sub>es</sub>  | 0,356   |
| lin. excursion P-P          | X <sub>max</sub> | 7 mm                                       | total  | Q <sub>ts</sub>  | 0,303   |
| max. excursion P-P          |                  | 29 mm                                      | Resonance frequency free air: f <sub>s</sub> |                  | 30 Hz   |
| *Frequency response:        |                  | 35-5000 Hz                                 | Rise time                                    |                  | 95 μs   |
| Harmonic distortion:        |                  | < 1%                                       | Sensitivity:                                 | IW/lm            | 92 dB   |
| Intermodulation distortion: |                  | < 1%                                       | Voice coil:                                  |                  |         |
| Magnetsystem:               |                  |  | diameter                                     | d                | 54 mm   |
| total gap flux              |                  | 1490 μ Wb                                  | length                                       | h                | 17 mm   |
| flux density                |                  | 0,91 Tesla                                 | layers                                       | n                | 2       |
| gap energy                  |                  | 849,4 mWs                                  | inductance (1 kHz)                           | L <sub>e</sub>   | 0,25 mH |
| force factor                | B x L            | 9,09 Tm                                    | nom. impedance                               | Z <sub>vc</sub>  | 8 Ω     |
| air gap volume              | V <sub>g</sub>   | 2,57 cm <sup>3</sup>                       | min. impedance                               | Z <sub>min</sub> | 6,4 Ω   |
| air gap height              |                  | 10 mm                                      | DC resistance                                | R <sub>e</sub>   | 5,6 Ω   |
| air gap width               |                  | 1,55 mm                                    | Data given are as after 30 hours of running  |                  |         |
| Net weight:                 |                  | 2,5 kg                                     | *Depends on cabinet construction             |                  |         |

\*Thiele/Small parameters are measured not statically but dynamically.

All specifications subject to change without notice

